Heuristic Evaluation

Moving on to the third stage of development, we have organized a usability test to our application.
The scenario of performing the tasks had a minimum complexity, being only necessary to make available to the participants a smartphone with the application installed. Participants were aware that all tests performed through the application would have no effect on any real car and that they would only be to simulate the operation of the application. The tasks consisted of: the participant should validate himself when entering the application (with data provided by us) and would have the opportunity to navigate the application to understand it and solve the problems presented to him; the participant also had as objectives to manipulate the air conditioning of his car, locate it and check the condition of the vehicle. After the test, the participants answered a questionnaire whose objective was to help us collect data to improve the usability of the application.

At the end of these tests and questionnaires and after analyzing their results, we found that on average participants found the application:
- easy and pleasant to navigate and find what you are looking for;
- fast and consistent;
- easy to read and with intuitive icons;
- with an attractive graphic appearance.

However, we also found that some participants:
- in certain tasks they felt the need to use the information *tab* (existing on each page of the application) to understand the purpose of the page;
- sometimes did not find the amount of information presented adequate
- Had the opinion that certain more important features should have a better highlight.

Analysis of the visibility of the usability principles in the applications
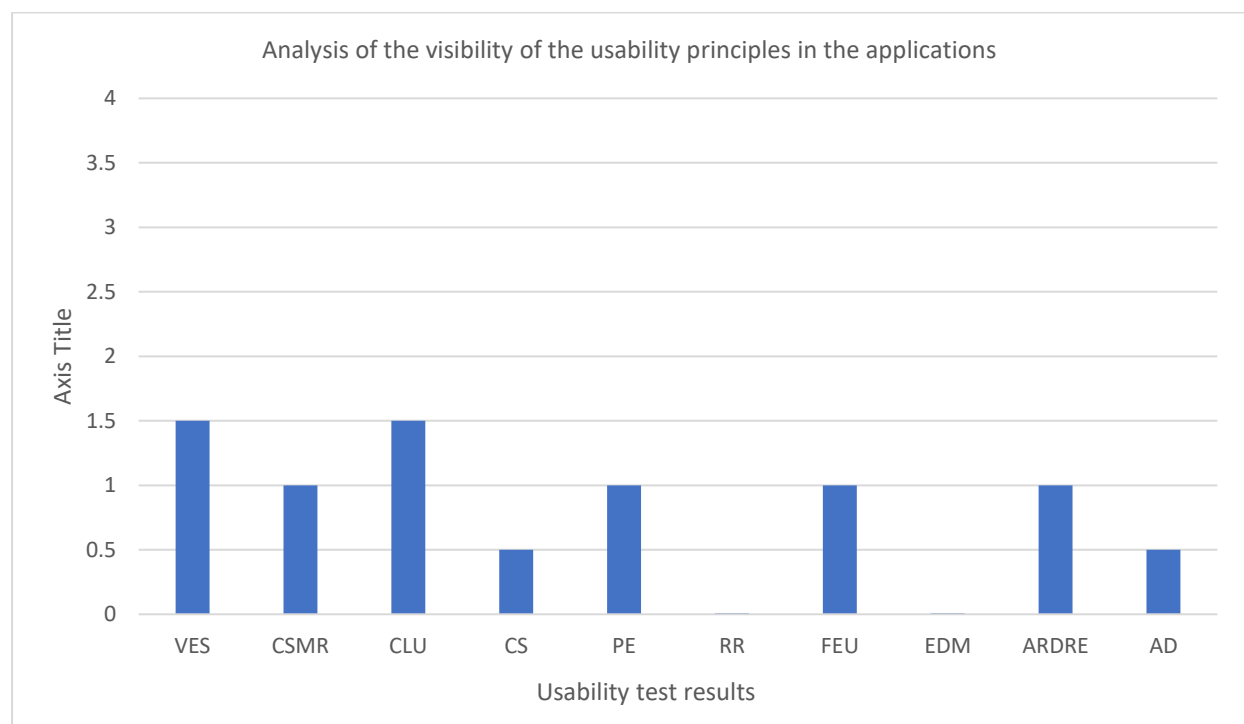
Graph 1 – study of the presence of usability principles in the application, based on the data collected in the tasks of the usability test and in the post-task questionnaire through an interpretation of our relationship between the answers given and heuristics. The evaluation is made from 0 to 4, where 0 means no usability problem and 4 has the meaning of total catastrophe.

– legend:
        VES = System State Visibility
        CSMR = System-Real-World Correspondence
        CLU = User Control and Freedom
        CS = Consistency and Standards
        PE = Error Prevention
        RR = Recognition instead of Remembrance
        FEU = Flexibility and Efficiency in Use
        EDM = Aesthetics and Minimalist Design
        ARDRE = Help in Error Recognition, Diagnosis, and Recovery
        AD = Help and Documentation

Notes:
- no participant refused to perform any of the tasks or to complete the post-task questionnaire
- the data of each participant were kept in total anonymity, as well as their results after the usability test
- it is important to make it clear that all participants attended the discipline with which this project is related, one of   which was the teacher of the discipline